PHENIX

Technical Support 2006

PHENIX
WEEKLY PLANNING

9/7/06

Don Lynch

PHENIX Shutdown Overview

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Task_Name	Start_Date	Finish_Date
PHENIX Shutdown '06	5/1/2006	12/8/2006
Pre Shutdown Tasks	5/1/2006	DONE
End of Run 6	6/27/2006	DONE
Shutdown Preparations	6/27/2006	DONE
Detector Upgrades	7/19/2006	10/10/2006
Planned electrical power outage	7/24/2006	DONE
Subsystem maint/repair tasks	7/19/2006	10/10/2006
Building and infrastructure tasks	5/1/2006	10/31/2006
E carriage roll in & setup	10/11/2006	10/31/2006
RHIC Cooldown Begins	11/1/2006	11/1/2006
Run Prep	11/22/2006	12/8/2006
Shutdown Concluded Start Physics Run	12/8/2006	12/8/2006

Prior To Shutdown

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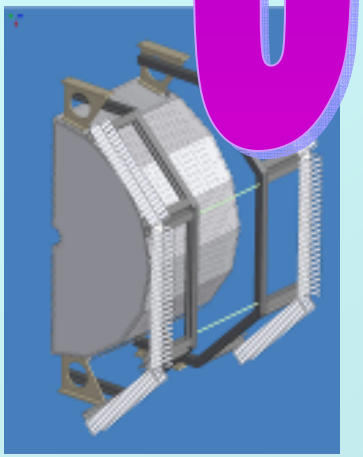
Pre Shutdown Tasks	60 days	
Mechanical design For RXNP	4 wks	Complete
HBD cable mangement	4 wks	Complete
Receive TOF West detectors from VU	0 days	Compl
TOF West pre-installation tests (hi bay)	4 wks	Compl
Design mounting/install'n for MPC N	6 wks	pl
Order/fabricate XNP/HBD/MPC	w	ol
Modify TEC c to	ks	ol
Design piping f g e	k	ol
Work Permits	k	ol
End of Run 6	ay	Er

Complete



Shutdown Prep

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Shutdown Preparations	16 days	6/26/2006	7/18/2006
Purge gas from all detectors	2 days	Done	Done
End of Run party	0 days	Done	Done
DAQ tests (no Flam. Gas)	3 days	Done	Done
Open up & prep	1 day	Done	Done
Open rolling door			Done
Remove rolling ug doors			Done
Take down E er			Done
Prepare EC f			Done
Remove bea			Done
Move MMS fu h and re			Done
Retract and r		Done	Done
Install 12 ton		Done	Done
Move beampi	day	Done	Done
Install decking	1 day	Done	Done

Complete

Detector Upgrades

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TOF West	-	-
Design	Done	Done
Purchased/procured parts	Done	Done
Fabricated parts	Done	Done
Assembly at 510	Done	Done
Work permit	Done	Done
Mechanical Installation	Done	Done
PHENIX mechanical survey offsets (adjustments completed no further adjustment reasonably feasible)	Done	Done
Electrical	-	-
HV/LV/Signal Cable routing & connecting	Done	Done
Modify/upgrade rack	-	-
electronics	18-Jul	15-Sep
cooling water	18-Jul	15-Sep
Testing	18-Jul	15-Sep

Detector Upgrades

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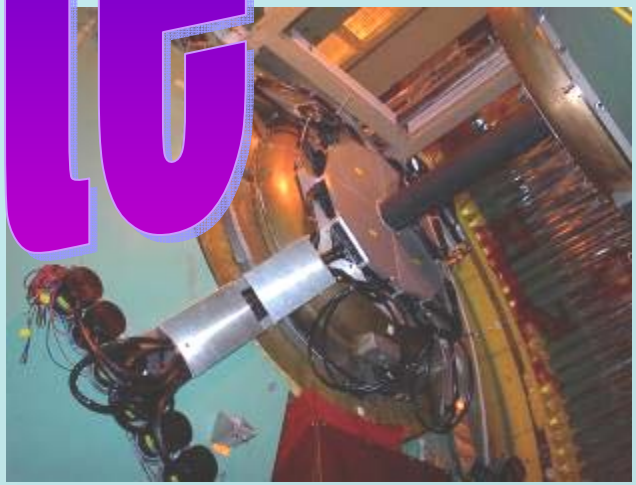
RXNP	-	-
Design	Done	Done
Purchased/procured parts	Done	Done
Fabricated parts	-	-
PMT Covers	Done	Done
Fan covers	Done	Done
Assembly: 8 quadrants	-	-
South detector	Do	
North detector		
: 8 quadrants		
		-
Nort		
	Do	Done

Complete



Detector Upgrades

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RXNP (Cont'd)

Electrical Installation	-	-
HV/signal/optical routing and connecting	Done	Done
Rack installation	-	-
Mechanical Installation	Done	Done
Water hookup	5-Sep	8-Sep
Power hookup	5-Sep	8-Sep
Cable connections	5-Sep	8-Sep
Safety systems	4-Sep	8-Sep
Grounding	5-Sep	8-Sep
Testing	31-Aug	1-Oct
Project Closeout	27-Oct	1-Dec

Detector Upgrades

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HBD	-	-
Design	Done	Done
Purchased/procured parts	Done	Done
Fabricated parts	Done	Done
Assembly	-	-
West and East detectors at Stony Brook	18-Jul	2-Oct
electronics racks at PHENIX	Done	Done
cable trays at PHENIX	Done	Done
movable cable trays	Done	Done
Fixed cable trays	Done	Done
Pre-Survey: West and East detectors at Stony Brook	-	-
West detector	Done	Done
East detector	18-Sep	6-Oct
Scribe centerline marks on upper and lower ibeams	Done	Done
Mechanical Installation: West and East detectors in IR	-	-
West detector	Done	Done
East detector	20-Sep	9-Oct
West moveable cable trays	5-Sep	8-Sep
East moveable cable trays	25-Sep	10-Oct
Fixed cable trays	Done	Done

Detector Upgrades

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HBD	-	-
Installation survey	-	-
Set up equipment for West detector	Done	Done
Adjust location of West detector	6-Sep	7-Sep
Set up equipment for East detector	27-Sep	9-Oct
Adjust location of East detector	28-Sep	10-Oct
Electrical Installation		
HV/signal/LV routing and connecting	11-Sep	11-Oct
Rack installation and connection	1 Sep	8-Sep
Mechanical Installation	Done	Done
Water hookup	8 Sep	8-Sep
Power hookup (Mike Rau)	8 Sep	8-Sep
Cable connections	8 Sep	22-Sep
Safety systems	8 Sep	22-Sep
Grounding	8 Sep	22-Sep
Testing	9-Sep	10-Oct
Gas system	-	-
Final piping	1 Sep	10-Oct
IR distibution panel and monitoring hardware	1 Sep	10-Oct
Gas house controls and monitoring system	1 Sep	31-Oct
Monitoring hutch controls, monitoring and piping	1 Sep	10-Oct
Other: Cooling, Heating, Flash Lamp: design/review/fabrication/installation	30-Aug	10- Oct

HBD Installation

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More pictures of the HBD installation and design/construction/assembly/testing history can be found at

http://picasaweb.google.com/hadronblind

HBD Electronics Cooling

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Needed for Approval to Operate:

- max HBD elctronics temp on cooling failure – (68 C)
- Consequences of failure – presumed reduced preamp life if failure is allowed to continue
- Interlocks? – No failure is not a safety concern only a longevity concern
- Where will fan(s) be mounted? – CM base "cubby hole" fan model and specs to be forwarded to Safety
- Fan Filter? Effect on fan- Yes, on fan inlets, less than 5 in H2O dP
- Written installation & operation procedure – To be forwarded to Safety

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HBD Heaters

Needed for Approval to Operate:

- Heater Specs - 6 MINCO non-magnetic kapton laminate heaters per detector, 17.6 ohms per heater (2 shown, 2 each on ends) Spec sheets to be supplied to Safety
- Peak current/Voltage/Power - 70 watt peak power 35 Volt/2 amp peak (per heater)
- max temp at continuous peak operation (temperature controller failure) - 60 C
- Max controlled temperature – 53 Cmonitored by RTD's
- Interlocks? – RTD's for temperature control, power supply limits for power. Specs to be provided to Safety
- Heaters must be locked out during run? – Yes or justification/impact to be forwarded to Safety
- Written installation & operation procedure – To be forwarded to Safety

Detector Upgrades

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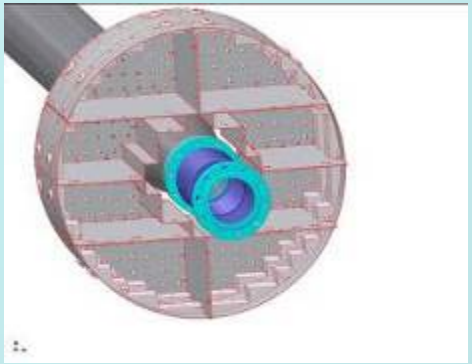
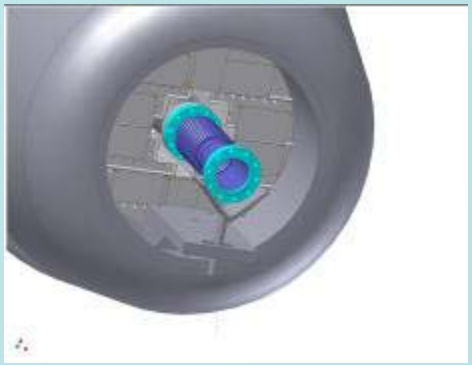
MPC N		
Design	Done	Done
Purchased/procured parts	Done	Done
Fabricated parts	-	-
Detector Parts	Done	Done
Go-No Go gauge	Done	Done
Assembly	-	-
Pre assembly/fit up at UI	Done	Done
Pre assembly/fit up at PHENIX	Done	Done
electronics racks at PHENIX	11-Sep	15-Sep
Mechanical Installation:		
Detector sextants	11-Sep	12-Sep
cable trays	13-Sep	14-Sep
Installation survey	15-Sep	15-Sep
Electrical Installation		
HV/signal/LV routing and connecting	18-Sep	22-Sep
Rack installation and connection	25-Sep	29-Sep
Mechanical Installation	25-Sep	29-Sep
Power hookup	25-Sep	29-Sep
Cable connections	25-Sep	29-Sep
Safety systems	25-Sep	29-Sep
Grounding	25-Sep	29-Sep
Testing	2-Oct	10-Oct
Project Closeout	27-Oct	1-Dec





MPC N at BNL

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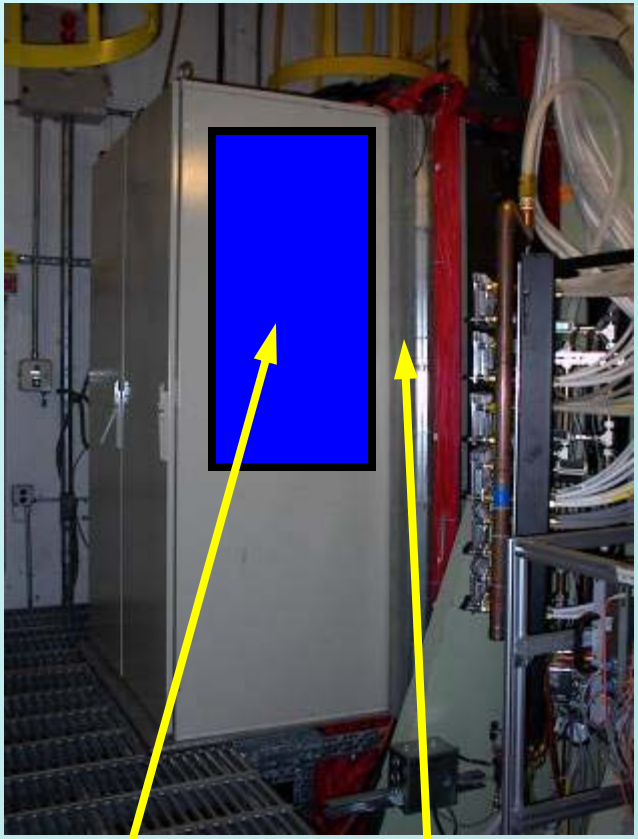

MPC N Rack goes here oriented with long edge vertical

18" cable tray has been replaced with 6" tray shifted 12" to the north on this face of MUID rack

Subsystems

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IV. Existing Detector Maintenance

EMCal			
	WC maintenance and repair	Done	Done
	EC maintenance& repair	Done	Done
DC			
	HV/LV patch panel	Done	Done
	West Wire repairs	18-Sep	22-Sep
MuTr			
	Prepare work permits for MMS and MMN	Done	Done
	Remove SE vertical lampshade	Done	Done
	Remove SE bias lampshade	Done	Done
	Troubleshoot shorts in MMS	Done	Done
	Repair shorts	Done	Done
	Troubleshoot and repair Repair MMS and MMN HV/FEE's etc.	Done	Done
	Reinstall SE bias lampshade	Done	Done
	Reinstall SE vertical lampshade	Done	Done
	Closeout workpermit	9-Oct	9-Oct
PC			
	Prepare Cables, modules	11-Oct	23-Oct
	HV Module and cable maintenance	24-Oct	31-Oct

Subsystems (continued)

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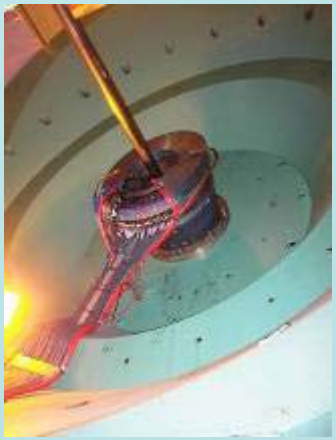
IV. Existing Detector Maintenance

MPC s			
	Prepare work permit	Done	Done
	Remove cables for access	Done	Done
	Remove top 2 octants for rework	Done	Done
	Rework/repairs on removed octants	Done	Done
	Reinstall top octants	Done	Done
	Reinstall wiring	Done	Done
	Closeout work permit	9-Oct	9-Oct
TEC			
	Machine slots in fittings	Done	Done
	Maintenance and repairs on TEC electronics	31-Jul	15-Sep
BBC			
	Remove BBC South and	Done	Done
	Remove BBC North	7-Sep	8-Sep
	Maintenance and repairs	23-Aug	22-Sep
	Reinstall BBC North	25-Sep	25-Sep
	Reinstall BBC South	26-Sep	26-Sep
MuID		30-Oct	3-Nov



Infrastructure Work

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CAD/RHIC PHENIX infrastucture related mechanical and electrical support

Emergency remote breaker installation	Done	Done
Summer Sunday review platform and safety rails	Done	Done
Bridge Water supply vertical piping rework	Done	Done
Replace emergency fan louvres	-	-
Rewire/Add IR ceiling lights on emergency power	-	-
Replace WC sliding platform hoisting cables	-	-
Mixing House exhaust fan maintenance	-	-
Raw materials storage container painting and doors	Done	Done
Roof leak repairs	-	-
He Bags	**1-Aug**	**31-Oct**
MuID survey	2-Oct	6-Oct
Bridge protective runners	Done	Done

Infrastructure Work

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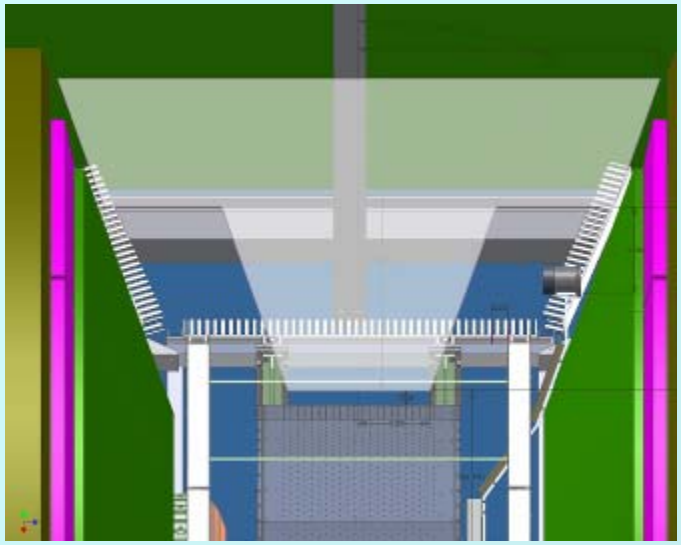
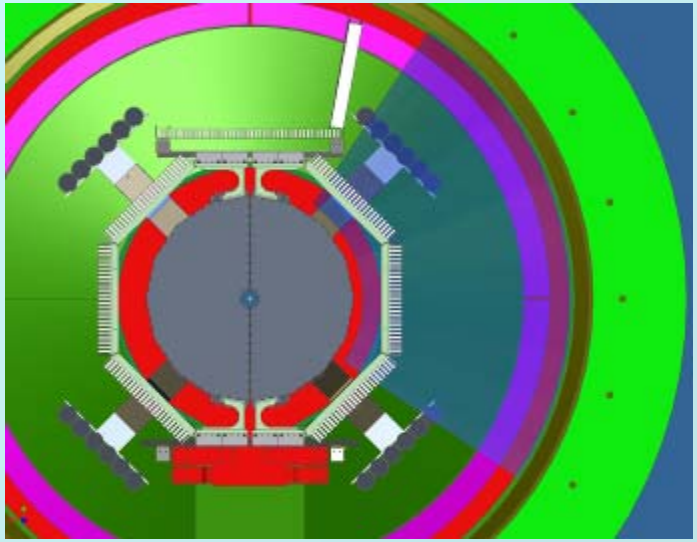
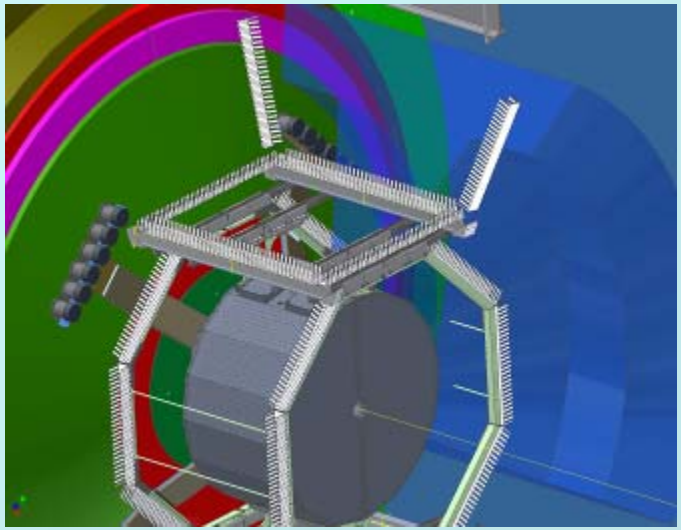
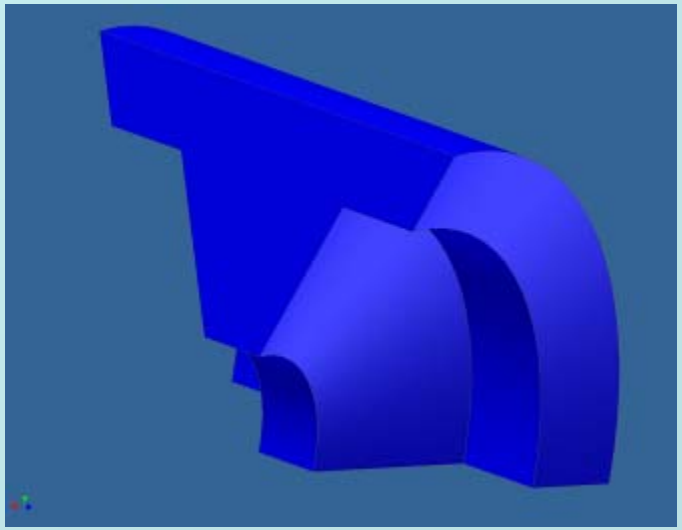
Detector seismic restraints and other orphaned items, have not been used, were stored under AH south stairway. HBD needs the space for gas monitoring hutch. Now on pallets in AH. No forseeable use. Can we scrap this crap??

He Bags









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2006 Shutdown Wrapup/Run 7 Prep

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East carriage roll in & setup		
Prepare EC for move to IR	11-Oct	13-Oct
EC Roll in	16-Oct	17-Oct
Connect EC services	18-Oct	24-Oct
Install EC Ladder	24-Oct	25-Oct
Install EC rear access & ext.	25-Oct	26-Oct
Move MMS full North	26-Oct	26-Oct
Install beam pipe collar	27-Oct	27-Oct
Rebuild Rolling door	30-Oct	1-Nov
RHIC Cooldown Begins	1-Nov	1-Nov
Close rolling door	1-Nov	1-Nov
Pink Sheeting & Blue Sheeting	1-Nov	21-Nov
Start Flammable Gas Flow	22-Nov	22-Nov
All Up Commissioning	27-Nov	1-Dec
Beam in yellow ring	22-Nov	22-Nov
Beam in blue ring	29-Nov	29-Nov
RHIC beam conditioning	30-Nov	8-Dec
Shutdown ConcludedStart of Physics Run	8-Dec	8-Dec

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Next Week

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- HBD west cable installation to bridge and to LV/signal rack, cooling & heating systems
- Move CM South
- RXNP Crate wiring and electrical tests
- TEC repairs
- BBC N removal for maintenance
- Begin MPC N installation
- MPC N Cable path/trays
- MuTr N maintenance
- Move CM North for DC repairs

Tier I Concerns

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1. Flammable material in the tech shop stored in boxes should be placed in the chemical cabinet

   We will investigate and address this issue as appropriate.

2. The following housekeeping issues must be corrected:

   a. Boxes stored in the tech shop must be emptied and stored properly.

   These are components for new detectors about to be installed. Their current location is proper and appropriate as a temporary location out of the way of current work in the IR until they are needed. No action required. Boxes will be discarded properly after contents are installed.

   b. Storing material between the building and shielding (Electronics Area) is not considered a storage area and should be removed.

   c. Storing gas tanks and holders under the wood steps outside is not allowed and should be removed.

   We will investigate and address this issue as appropriate.

   d. Cardboard on floor behind PHENIX experiment should be removed.

   We will investigate and address this issue as appropriate.

   e. 1008F wiring found outside and should be relocated.

   We will investigate and address this issue as appropriate.

3. The PHENIX facility has numerous 4" openings that are not in compliance with OHSA standard. The standard allows 4" holes but not openings that are 4" wide by 8 - 10 feet long. All of the grating system needs to have fillers placed in these large openings

   These openings are necessary for maneuvering the large detectors and our 12 ton cart. All unnecessary openings have already been addressed by the upgraded grating system installed by C-A during the 2005 shutdown. Bridging the gaps with fillers places an unnecessary burden on the PHENIX technical staff to continuously fill and unfill these gaps as equipment needs to move along the rails. PHENIX does not agree with the tier I findings on this issue and will not take any further action to address the findings.

Tier I Concerns

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4. In the PHENIX highbay area there is a sink and water pump in front of a disconnect that needs to be relocated per OHSA

Movement of the sink and water pump is a facilities issue that has previously been brought to the attention of the (C-A) facility manager. It will be addressed on a priority basis by C-A.

5. The PHENIX laser is not secured. A key was left in the power supply and the door is open. Remove the laser key and secure the area as required.

The tier 1 finding is incorrect. This has previously been addressed by PHENIX and C-A safety wherein it has been agreed that the laser is secured by lock within the laser enclosure and not by locking the room. The required safety/security procedure is and has been followed.

6. The PHENIX gas storage facility has three (3) small isobutene cylinders not secured. A gas storage sign is on the ground. Also a gas cylinder rack is all rusted (behind the carbon dioxide dewar) that needs to be replaced. In addition, the 5,200 gallon dewar does not have a "label" on it identifying its contents

These issues are acknowledged and will be addressed promptly (by Oct. 18).

7. In the PHENIX gas storage facility there is a 5,200 gallon dewar that has a manufacturer plate on it stating that this dewar is rated and designed to hold hydrogen. However, it is believed that the content of this large dewar is nitrogen, which is 14 times the density of hydrogen. This dewar requires the manufacturer to supply legal documentation stating that it is capable of holding 5,200 gallons of nitrogen. This document must be provided to the C-AD ESH Coordinator.

This issue has been addressed by the C-A safety committee and demonstrated to the committee by test documentation and calculations that the dewar is adequately designed for liquid nitrogen. PHENIX will obtain appropriate documentation indicating the suitability of the subject dewar for its current service and make sure that the tank is appropriately labeled promptly (by Oct. 18).

Where To Find PHENIX Technical Info

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Links for the shutdown schedule as well as weekly planning meeting slides, long term planning, pictures, videos and other technical info can be found from the web site:

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm